

CLAIMS:

In the Claims

- Sub E. 1. (Currently Amended) An optical recording system comprising:
- a writing array of modulatable light sources;
 - a reading array of modulatable light sources, ~~each modulatable light source formed as a~~
~~Vertical Cavity Surface Emitting Lasers (VCSEL); and~~
 - an objective lens positioned relative to said writing array and said reading array of modulatable light sources such that said objective lens is capable of focusing at least one light beam from each of said writing array and said reading array of modulatable light sources on a target medium; and
 - ~~a detector to receive a set of one or more beams, the set of one or more beams having emanated from the reading array of VCSEL and the set of one or more beams having reflected from the target medium;~~
- wherein the writing array and reading array are embedded in a common substrate.
2. (Previously Amended) The optical recording system of claim 1 wherein said writing array of modulatable light sources comprises a first array of VCSELs and said reading array of modulatable light sources comprises a second array of VCSELs.
3. (Currently Amended) The optical recording system of claim 2, further comprising a detector to receive a set of one or more beams, the set of one or more beams are emanated from the reading array and are reflected from the target medium ~~wherein said first and said second VCSEL array are embedded in a substrate.~~

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4. (Previously Amended) The optical recording system of claim 3 wherein each VCSEL of said first VCSEL array is capable of writing a separate track on said target medium.
5. (Original) The optical recording system of claim 1 wherein said modulatable light sources are spaced at regular intervals.
6. (Original) The optical recording system of claim 5 wherein said regular intervals comprise center-to-center distances of at least approximately 40 microns.
7. (Previously Amended) The optical recording system of claim 1 wherein said writing array of modulatable light sources comprises at least one line of modulatable light sources positioned at an angle relative to a direction of movement of said target medium.
8. (Original) The optical recording system of claim 7 wherein each modulatable light source of said at least one line of modulatable light sources is associated with a separate path on said target medium.
9. (Currently Amended) The optical recording system of claim 1 further comprising:
a polarizing beam-splitter located between said writing and said reading array of modulatable light sources and said objective lens; and
a circularly polarizing element located adjacent to said polarizing beam-splitter.
10. (Original) The optical recording system of claim 9 wherein said circularly polarizing element comprises a quarter wave plate.

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IV. (Currently Amended) An optical recording system comprising:
a first array of Vertical Cavity Surface Emitting Lasers (VCSEL);
a second array of VCSEL; and
an objective lens located in an optical path of each of said first and second VCSEL arrays,
wherein said objective lens is capable of focusing at least one light beam from each of said first and
second VCSEL arrays on a target medium; and
a detector to receive a set of one or more beams, the set of one or more beams having
emanated from the second array of VCSEL and the set of one or more beams having reflected from
the target medium;
wherein the first VCSEL array is located on a first substrate, and the second VCSEL array is
located on a second substrate.

12. (Original) The optical recording system of claim 11 wherein said first VCSEL array
comprises a writing array and said second VCSEL array comprises a reading array.

13. (Original) The optical recording system of claim 12 wherein said first VCSEL array
comprises a plurality of individually modulatable light sources and said second VCSEL array
comprises a plurality of continuously operable light sources.

14. (Original) The optical recording system of claim 12 wherein:
said first VCSEL array is capable of emitting a plurality of light beams having a first
wavelength;
said second VCSEL array is capable of emitting a plurality of light beams having a second
wavelength different from said first wavelength; and
said objective lens is achromatic.

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15. (Original) The optical recording system of claim 12 wherein each VCSEL of said first VCSEL array is capable of writing a separate track on said target medium.

16. (Original) The optical recording system of claim 15 wherein said first VCSEL array is positioned at an angle relative to a direction of movement of said target medium.

17. (Cancelled)

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18. (Currently Amended) The optical recording system of claim 11 wherein ~~said first and second VCSEL arrays are located on a common substrate~~ the first and second substrates are integrated into a common substrate.

19. (Original) The optical recording system of claim 11 wherein said first and second VCSEL arrays have the same array spacing.

20. (Original) The optical recording system of claim 12 further comprising:
a first polarizing beam-splitter located between said first VCSEL array and said objective lens;
a second polarizing beam-splitter located between said first polarizing beam-splitter and said objective lens; and
a circularly polarizing plate located adjacent said second polarizing beam-splitter.

21. (Original) The optical recording system of claim 20 wherein said first polarizing beam-splitter comprises a dichroic polarizing beam-splitter.

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22. (Previously Amended) An optical recording system comprising:
a writing array of Vertical Cavity Surface Emitting Lasers (VCSEL);
a reading array of VCSEL;
a dichroic polarizing beam-splitter positioned to receive a plurality of light beams
from each of said writing VCSEL array and said reading VCSEL array;
a polarizing beam-splitter positioned to receive said light beams upon said light beams
exiting said dichroic polarizing beam-splitter;
a circularly polarizing plate coupled to an exit face of said polarizing beam-splitter;
an achromatic objective lens positioned to receive said light beams upon said light beams
exiting said circularly polarizing plate, wherein said objective lens is capable of focusing said light
beams on a target medium;
at least one adjustment device coupled to said objective lens to adjust a position of said
objective lens;
a detection system positioned to receive said light beams upon said light beams reflecting
from said target medium, said detection system capable of providing data to control said at least one
adjustment device.

23. (New) An optical recording system comprising:
a multidimensional writing array of modulatable light sources;
a multidimensional reading array of modulatable light sources; and
an objective lens positioned relative to said writing array and said reading array of
modulatable light sources such that said objective lens is capable of focusing at least one light beam
from each of said writing array and said reading array of modulatable light sources on a target
medium.

24. (New) An optical recording system comprising:
a multidimensional writing array of modulatable light sources;

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a reading array of modulatable light sources; and
an objective lens positioned relative to said writing array and said reading array of
modulatable light sources such that said objective lens is capable of focusing at least one light beam
from each of said writing array and said reading array of modulatable light sources on a target
medium;

wherein the writing array and reading arrays are angled on a substrate such that each
modulatable light source of the writing array can write a separate track on the target medium.